

# AMERICAN VETERINARY REVIEW,

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## ORIGINAL ARTICLES.

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### THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 5.)

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**TENDINOUS QUITTOR.**—**SYNONYMS.**—*Hornwurne* (German).—It is the nervous quittor of hippiatres, and the analogue of the felon of man. It is again a furuncle, different from the preceding, only because instead of being limited to the skin and subcutaneous cellular tissue, there is caries of a portion of the tendons (especially the flexors), or of the ligaments of the region, and also, at times, necrosis of the bone with synovitis and arthritis. By extension, though we think, improperly, the name has also been given to the felon of the region of the cannon, while the application ought to be confined to that of the digital region, situated in the fold of the fetlock.

The quittor may be superficial or deep-seated when it affects only the subcutaneous cellular tissue, uniting the skin to the tendons, or where the inflammation extends to the phalangeal sheath, and the pus accumulates into it. Differing from cutaneous quittor, this form, generally less common, is more frequently seen in the anterior than the posterior extremities. It may also be seen in cattle.

I.—*Symptoms.*—The first symptom is an excessive lameness, manifesting itself even where no visible change exists in the affected leg. The animal evidently suffers great pain, while his actions do not aid us in localizing it accurately, though the foot is always examined as being the probable seat of it, the animal raising it more rapidly than the other from the ground, and resting on it with much caution and hesitation. After from two to five days a phlegmonous tumor appears at the coronet, above the heel. It is extremely warm, and much more painful than that in cutaneous quittor, the hoof and the skin preventing the free development of the inflammation by strangulating it. The foot almost ceases to rest on the ground, but is flexed and raised from it, feeling in the parts being very painful. The swelling of the leg extends to the fetlock, or to the cannons, and even to the knee. The animal has more or less fever, and when there is a deep quittor he loses all his appetite, and ordinarily lies down and continues in the recumbent posture.

Generally, much time is required for the phlegmon to assume the character of an abscess, as the slough, being in this case no longer formed by the cellular tissue, is slower to define itself. The process of suppuration is not so well localized; there is, on the contrary, a kind of deep abscess, which probably becomes complicated by the resistance opposed to the ulcerative inflammation by the aponeurosis of the sheath and the thickness of the skin. However this may be, it is always very difficult to recognize the presence of one or several of these abscesses, even when they form in the subcutaneous cellular tissue, and so much the more if the purulent gathering is deeply seated.

After the opening of the abscess and exfoliation of the slough, either with or without the dropping of a portion of the skin, there does not remain the simple wound of the cutaneous quittor, but on the contrary, a persistent fistula, running down a necrosed point of the tendons or of the fibrous sheathes. At times, almost from the outset, we may observe in the fold of the coronet numerous little pimples, which terminate in as many deep fistulae, from which ooze a more or less thick humor, foetid, puriform and bloody. In infrequent cases, the disease is unaccompanied with

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suppuration, and there is a swelling, more or less hard, with a gradual diminution of the pain and other inflammatory symptoms. A more frequent complication is the suppurative inflammation of the tendinous sheaths, or even of the digital articulations. There may also be a diffused gangrene, with separation of the hoof and purulent infiltration under the horny box; periostitis, and caries of the cartilage. This is the deep tendinous quittor in the most severe form. In this last case, especially if there is an accumulation of pus in the tendinous sheath, the tumor is very painful, the slightest touch giving rise to the manifestation of extremely acute suffering, the hoof being constantly raised from the ground. The fever is violent, there is a complete anorexia, and the exercise of all functions is more or less disturbed. The compulsory resting upon the healthy legs may give rise to swelling of the hocks, and even to laminitis. In cattle, tendinous quittor becomes more painful than in the horse, and is always accompanied by a swelling which may extend to the knee. Rumination stops, and the animal endures great anguish. The slough is followed by a wound of varying depth, which often exposes the diseased articular surfaces of the phalange. If this remains too long, the pus may affect the inter-digital ligament, complicate the disease, and even make it incurable. In this case the amputation of one of the digits may sometimes be performed.

II.—*Progress, Duration and Termination.*—The duration is generally protracted; the disease often gives rise to chronic lesions difficult to remove. This will be easily understood, if we remember that the region affected is composed, between the skin and the bones, of synovial capsules, ligaments, tendons and aponeuroses, more or less cellular tissue, and of very strong nervous ramifications. If the disease is not very deeply seated or unilateral, complete recovery may be looked for; but if there are chronic lesions, if the articular surfaces become affected; especially if particles of bone are sloughing, if the animal recovers it will be but imperfectly, and it will usually be accompanied by ankylosis of the joint, and diffused gangrene is also a complication to be looked for.

III.—*Diagnosis.*—We said at the beginning that tendinous

quittor is a very obscure disease; the lameness is very great, but not characteristic; in proceeding, we referred to the acute local pains at the side of the tendinous cord of the cannon, the inflammatory swelling, the increase of local pains, and the general reactive fever.

**IV.—Prognosis.**—It is a very serious disease, on account of the possible complications and sequelæ. The loss, or the deformity of a phalanx, which are sometimes among the sequelæ of the felon of man, are in him, accidents which never give rise to serious complications, or are quickly forgotten, while in the horse such complications are equivalent to the death of the animal.

**V.—Etiology.**—The causes are the same as those of a simple quittor which is complicated with the tendinous kind; this is also observed after the subcutaneous abscesses, frequently resulting from bruises, or even from punctured wounds. It is most commonly met with in low bred horses and Fisher says that it is more frequent, and less malignant, in young than in adult animals; according to this writer it is a common manifestation of distemper. Irritating muds favor its development in the same manner in active as in simple quittor. It often appears without appreciable causes.

**VI.—Treatment.**—When tendinous quittor is superficial it requires about the same treatment as the simple kind, except that in this case the counter openings must be made early to prevent the sloughs, migrations of the pus and the gangrene. The surgeon must not forget that the inflammation in this affection must ordinarily terminate by suppuration, and he must bear in mind that there is a possibility of the modification of the inflamed cellular tissue, and that the mortified portion of that tissue must slough out, as their presence too long continued may be very dangerous. The general indication is to prevent, as much as possible, the accumulation of the pus, an indication which will be best fulfilled by making openings for its escape, even before the formation of the abscess. As the tissues which surround the pus are very resisting, nature will not be able, or if so, only with great difficulty, to effect the expulsion of these matters. It is for this reason that it is necessary to assist her operations by mak-

ing an opening for the escape of the pus and of the slough. The operation is without danger; but if it is not performed in good time the lesions will be likely to spread, the disease cease to remain a local trouble, and the life of the animal become compromised.

It is also more necessary to make an opening when the purulent secretion is established, for in this case it is important to avoid delay and to facilitate its escape. A simple longitudinal incision, four or five centimeters long, is sufficient, when the collection lies immediately under the cutaneous organ. This incision must involve the whole thickness of the skin, as far as the tendons, and should be made in the middle of the coronet region, as near the foot as possible. It gives rise to an abundant hemorrhage, which relieves the part, and warm poultices and baths, to accelerate the suppuration, are then indicated.

When the product of suppuration has passed in the tendinous sheath, a longitudinal opening of this part towards the most dependent points, is indicated. To do this, a canulated directory is introduced to guide the bistoury; when the incision is made, the pus flows freely, and by this mode the large blood-vessels and the various ligaments of the region are avoided in the operation.

Notwithstanding the incision, or if the suppuration had already accumulated before it was made, the pus may also accumulate in the pouch formed by the tendinous sheath behind the tendons. It is then very difficult to prevent its collection in those deep parts, and it may extend to the small sesamoid. It is because the pus cannot run towards the skin that it filtrates along the tendon. It is only by pressure and by injections that the indications presented can be fulfilled. After making free incisions, one may try by pressure to remove the pus accumulated between the tendons and their sheaths, following it by cleansing injections, which must be repeated as often as possible.

The wounds which remain after the slough, in the superficial tendinous quittor, and that which follows the opening of the simple or multiple abscesses when it is deeper, are always characterized by the presence of fistulas running down to some necrotic

spot of the tendons or of their sheaths. For these an injection is recommended of tincture of aloes, tincture of iodine, and sometimes of Villate's solution; lately, dressings with petroleum or phenic acid have been used. Phenicated baths, those of sulphate of iron and lotions of permanganate of potash have also proved useful. At times, when the fistulas are persistent, it is necessary, after enlarging them, to have recourse to actual cauterization with a pointed cautery introduced, while at a white heat, down to the bottom of the tract. A general dressing of the wound follows, with tincture of aloes, sometimes with egyptiacum. The dressings should be more or less frequent, according to the quantity of the pus discharged. We must dress until the wound is entirely healed, and it must moreover be carefully watched for fear of another infiltration of pus, or the formation of other fistulas.

Superficial canterization is necessary in order to remove the induration and swellings likely to follow, and to stimulate the resolution. The action of the firing may be stimulated by blistering, or by an alterative ointment of iodide of mercury, of sulphur, &c.

*(To be continued.)*

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## ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.\*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

*(Continued from p. 13.)*

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### *Actinomykosis of the Oesophagus.*

A most interesting instance of the disease in the oesophagus is described by Siedamgrotzky, who obtained the specimen fresh, and carefully examined it. The mucous membrane of the tube was covered with hundreds of small, flattened, sub-epithelial nodules, from one to four millimeters in diameter, mostly collected in groups, in each of which in a bright light, a small yellow centre could be distinguished by the naked eye. In some

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\*From the Veterinary Journal.

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places the small tumors had become confluent to form irregular, compact masses, about twenty millimeters long, of a pale-red tint, and in which the yellowish-red centres or kernels were visible. Some of the tumors stood out from the mucous membrane like pin-heads. In the middle of the oesophagus was a similarly shaped polypus, from eight to nine millimeters in diameter at its base on the mucous membrane. The tissue of these masses was yellowish-red, soft, and filled with numbers of nodules containing the *Actinomyces*. †

#### *Actinomykosis of the Stomach and Intestinal Canal.*

Two specimens of the disease in the stomach and intestines are described by Johne. In the second compartment of the stomach of an ox was found a round, flat tumor, the size of a fist, attached to its surface, and covered by normal mucous membrane. Its interior was soft, more or less spongy, and contained numerous small masses of nodules, consisting of conglomerations of the *Actinomyces*.

Bollinger alludes to what was described as a tuberculous ulcer in the rumen of a cow, but which he is of opinion was a case of actinomykosis.

Perroncito has described a sarcoma of the intestines and stomach, in which the fungus was found.

#### *Actinomykosis of the Udder.*

Johne has described two instances, and Ponfick one, of the disease occurring in the udder. Two were in swine, and one was due to experimental inoculation. In Johne's cases—accidental and experimental—the disease appeared as a diffused fibroma. In the accidental case, the udder was enormously enlarged, and weighed nearly sixteen pounds; it was hard, indefinite in mass, and on section appeared to be, from its white color, a

† An analogous instance, but the real nature of which was not suspected, is given in the Edinburgh *Veterinary Review* (vol. 4, p. 235), under the heading, "Degeneration of the Mucous Membrane of the Oesophagus." The membrane was studded with what was described as warty growths, some of them of great size.

cellular fibro-sarcomatous growth, in which the gland structure was limited to a few small masses in the midst of the new formation. The teats were partly normal, partly effaced by retraction into the tumor, and partly granrenous and fissured. In the mass of the tumor were found a small number of well-defined nodules, from the size of a hazel-nut to that of a fist. The smallest of these contained a greyish-yellow or reddish mass, resembling brain tissue, with yellowish colored nuclei interspersed throughout. In the centre of the largest the matter appeared to be undergoing caseous degeneration, and in some of the interspaces was a greenish-yellow, thick, puriform fluid. The milk system was markedly altered. In places it was smaller and larger, and near the centre of the tumor it was flask or flagon-shaped, its outline being sharply defined, and the dilatations being filled with the typical spongy tumor mass.

In the case produced by inoculation, reference to which will be made hereafter, the most interesting fact is that the *Actinomycetes* was introduced into the gland by its milk duct, and that the inflammation set up in the mucous membrane, which was at first adventitional, became interstitial—affecting the intra-acinous connective tissue, and producing intensive development of the glandular parenchyma, with, finally, extreme hypertrophy of all the connective tissue.

Ponick had sent to him the udder of a sow which had been affected with erysipelas (*Rothlauf*), but there was such an unusual disappearance of the proper gland tissue, and altogether the lesions were so different to those brought about by that malady, that the existence of another disease was suspected.

In the middle of the largest half of a round swelling involving the entire mass of the mammae, and which was double the size of a child's head, were noticed a great number of soft, round nodules, fixed here and there in the lardaceous-looking substance of the tumor. This felt so peculiarly elastic, and was at the same time so compact, that on pressure on the surface it seemed as if the fluctuation was due to some deep-seated gelatinous fluid. This was enclosed in a white, dense, inelastic tissue, on the inner surface of which were some detached portions of the gland proper,

and which formed, with the thickened and indurated cutis, a continuous kind of rind. The entire mass gave the impression that the parts had been affected with diffuse inflammation, which had produced extreme induration of the skin and the subcutaneous and gland tissues. But what was peculiar, was the presence in the homogeneous mass of a considerable number—more than a dozen—of sharply-defined nodules, from the size of a cherry-stone to that of a walnut, imbedded in a spongy, flesh-like gelatinous matrix, and studded with yellowish spots, islets, and small cavities. These cavities contain a greyish-yellow fluid, in which a number of white bodies, the size of a millet-seed, were suspended.

Microscopically, no trace of the gland structure was found in the dense connective tissue. The yellow, flesh-like substance of the solid portion had a general resemblance to polymorphous round-cell tissue, with very few vessels, while lying in groups, in concentric strata of increasing dimensions, were small, white nodules. Throughout these, and in the fluid portion, were found immense numbers of the *Actinomyces*, many of them surrounded by a calcareous envelope. These felt like particles of sand.

#### *Actinomykosis of the Lungs.*

Actinomykosis of the lung of cattle had not been observed until Professor Pflug, Veterinary Professor in the University of Giessen, published an instance in 1882. Indeed, there were only four cases of lung actinomykosis recorded previous to this—two occurring in the human species, and two produced in calves by experimental inoculation—all recorded by Ponfick.

Pflug's case is very interesting, and is as follows:

A cow about five years old, appeared to be dull, did not eat as usual, and frequently coughed. For two days before the arrival of the veterinary surgeon, the appetite had almost gone, and the respirations and cough were so frequent that the owner thought the animal was suffering from inflammation of the lungs. The veterinary surgeon found the cow apathetic, nostrils widely dilated, and staggering about the stall; the dyspnoea was great, and breathing most laborious. Percussion on each side of the

chest yielded a dull sound, while auscultation detected an indefinite respiratory murmur, a bronchial rattle, and increased expiration. The pulse was proportionately strong, and the internal temperature  $40.9^{\circ}$  Cent. On a second visit all the symptoms were increased, and as they bore a strong resemblance to those of contagious pleuro-pneumonia—then prevalent in the district—he had the animal slaughtered. On examination only the lungs were found to be diseased, being studded with miliary tubercles, and as this condition was very unusual, the parts were forwarded to Pflug.

The lungs were fully distended with air, and firm, but elastic; for the most part they were anaemic and generally white, only small portions being hyperaemic. The pleura was normal, but there appeared throughout very many miliary tubercles the size of a pin's head, which formed so many slight prominences on the membrane, and caused it to feel granular. The lungs did not sink in water, even when incised. The cut surface had a fine porous, or pumice-stone appearance; and no serum, but only a small quantity of blood could be squeezed from it on pressure. The inter-alveolar and interlobular lung tissue appeared to be slightly thickened and porous, and this, together with the emphysematous condition of the alveoli, gave the lung its strongly elastic consistency. On the cut surface were seen numberless minute tubercles, very granular, in size about that of a millet-seed, or a little larger. In the hyperaemic patches the tubercles were very conspicuous. In none of these nodules was there a yellow centre or softening, and to the unaided eye they looked very little different externally, or in consistency, from the ordinary crude grey tubercle which is developed into the yellow tubercle.

Thousands of these tubercles were observed throughout the lung, in the middle of the respiratory tissue, near the bronchi and blood-vessels, and in the vicinity of the lobular tissue.

On microscopical examination, in the lung substance were found an immense number of tubercles, so small that they escaped the naked eye. These were generally round, on the cut surface discoid, and when two were confluent, biscuit-shaped, or distorted, jagged, or gibbous.

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The round or somewhat oval-shaped tubercles were generally about 0.45 mm., seldom 0.30; 0.27, or 0.20 mm. in diameter,\* and contained either a dark-tinted nucleus, or a spongy structure, with perhaps a dark nucleus in its midst.

This dark nucleus proved to be the most interesting discovery in the diseased lung. It was a round, globular, rarely a slightly oval body, with a diameter of from 0.04 to 0.05 millimeters. Under a low power its contour was sharp and distinct, and it had a yellowish-green tint, with a markedly radiating structure. With a higher radiating power, the contour was no longer sharp and circular, but notched or indented irregularly, and the radiating lines were found to be minute club-shaped particles, the smaller extremity being at the centre and the wider part toward the periphery of the mass. Still more highly magnified, there were distinctly observed in these radiating parts, particularly toward the centre, exceedingly minute, structureless granules of a light yellowish-green tint, refrangent, of a diameter between 0.008 to 0.01 mm.

In some of the tubercles it was very difficult to discover this radiating nucleus; it was so small and delicate that it had to be looked for with the greatest care and patience, and was often composed of only a small number of the club-shaped radiating portions—from four to six, or only three, starting from a point in the centre.

In each tubercle, around the fungns, and forming a medium stratum, was a large mass of cells, about 0.25 mm. in diameter. These cells were round or slightly polygonal, and lying close to each other. There were also spindle-shaped and other cells. The cells of the middle stratum were composed of faintly granular protoplasm, with a large nucleus, which was stained a deep blue by haematoxylin. The external stratum was fibrous, the fibres being concentric around the cells; it formed the limit of the tubercle, isolating it more or less from the normal inter-alveolar tissue.

\* A very large tubercle gave the following dimensions: Total diameter, 1.00 mm.; thickness of fibrous portion, 0.20; the middle cell portion enclosing the fungus, 0.60; *Actinomyces* tufts, 0.15.

There were other tubercles, as before mentioned, in which the fungus was so fine and small as to be difficult to detect.

In the anæmic portion of the lung, vesicular emphysema was well-marked, while in the hyperæmic portion there was no emphysema.

An important question arises with regard to the seat of these *Actinomyces* tufts in the lungs. Are they located in the parenchyma of the lungs, the alveoli, or in the lymph or blood-channels, and there give rise to the *Actinomyces* tubercles? It would appear that the tubercles containing the fungus are found in the parenchyma, rather than the alveoli. In the intermuscular connective tissue of the tongue they are nearly always located, and it appears to be the same with regard to the lungs. In both nodules or tubercles there is the same structure—an external fibrous capsule, a middle stratum of cells, and the fungus in the centre; the only difference is, that in the tongue the fungus mass is drusey, in the lungs it is globular.

Professor Marchand, in examining very many microscopical preparations of these lungs, discovered the *Actinomyces* tufts in the finest bronchi, evidently giving rise to a cellular exudation, thus strengthening the supposition that the fungus finds entrance through the respiratory passages.

#### *Actinomykosis of the Skin, and Submucous and Intermuscular Connective Tissue.*

Tumors which have, by some, been supposed to be of a scrofulous nature, and have received various names, such as "Cystosarcoma," "Lymphoisarcoma," "Hedgehog Throat" in Germany (and not improbably the so-called "wens" in Lincolnshire and elsewhere in this country), are somewhat common in cattle, rarer in other animals. Their chief seat is in the vicinity of the neck and head, toward the parotideal region. Several instances are recorded of similar tumors in other parts of the body, more or less voluminous, and which have, like those in the region of the head, been found to present the characters, and contain the microphite, which distinguish actinomykosis.

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Perroncito describes a tumor removed from the anterior part of the neck of a three-year old ox. This tumor had a wide, undefined base, and weighed nearly three pounds. On section, it was found to be composed of shining connective tissue, encapsulating a sarcomatous mass, which contained small masses of the *Actinomyces*.

Johne alludes to an instance of actinomykoma on the right cheek of a young cow. It was isolated, the size of a hen's egg, fungiform, and apparently sarcomatous; the skin over it was ulcerated. A test-section removed from it during the life of the animal, was found to contain granulation nodules within which were the *Actinomyces*. Six months after this section was made the tumor had disappeared, and there was only at the posterior border of the jaw, between this and the parotid gland, a small, spindle-shaped, characteristic *Actinomyces* tumor, and in the loose connective tissue between the upper and lower buccal glands were more yellow nodules, the size of a pea, each containing the fungus. The interesting feature in this case is the disappearance of the tumor without surgical treatment, it having only been dressed with sulph. cupri pulv. after the section had been made.

Another instance Johne met with in a two-year-old heifer, which a round, fungoid, flesh-like tumor, about two inches in diameter, on the right cheek, near the angle of the mouth; it appeared to grow by an ill-defined pedicle from the muscles. The corresponding part of the buccal mucous membrane appeared to be healthy. On the surface of the growth were seen the characteristic yellow nodules, which proved it to be an actinomykosis tumor. On removal it was discovered to arise from the intermuscular tissue in the vicinity of the submucous connective tissue. The wound healed by primary intention.

Veterinary Surgeon Eckert, of Walhalben, had sent to Johne, amongst other specimens, a round, dense tumor, about three inches in diameter, which had been removed from the sub-cutis, immediately over the masseter muscle, at the angle of the lower jaw. At the upper part of the tumor, at an earlier period, was a

small fistulous opening, from which a whitish-yellow pus flowed, but which, having ceased, the opening healed, and the swelling became somewhat less prominent. Shortly before this period he saw a similar tumor, slightly larger, which, like the other, was attached by strong connective tissue to the structures beneath. On examination both tumors were found to be actinomycoma; they were the size of, or bigger than large walnuts, spongy in texture, and full of the fungus tufts enclosed in a capsule of thick connective tissue arising from between the sub-cutis and the inter-muscular connective tissue.

Rabe relates the case of a cow, which had a number of pale, greyish-red tumors, round or somewhat bean-shaped, and of various sizes, on the left side of the face. The largest, about the size of a hen's egg, was situated at the outer margin of the nostril, where the cutis joins the mucous membrane, and was surrounded by a number of smaller and very small tumors. There were eleven others, varying in size from that of a hazel-nut to a plum, in the masseteric region; these were more or less apart, but between them were smaller ones, and here and there a marked cordiform kind of swelling—not unlike the inflamed lymphatics of farcy. The majority of the tumors lay immediately beneath the skin or the fascia of the facial muscles; the surface was smooth, and each tumor seemed to be isolated from its fellows. Over some of them the cutis had become ulcerated, and they appeared on their upper surface moist, red, and fungoid.

On section of these tumors there were observed a great number, particularly towards their periphery, of dull-yellow nodules the size of a pin's head, in the neighborhood of which the tissue was soft, spongy, and moist. On microscopical examination each of these yellow, submiliary granules was found to contain the *Actinomyces* tufts in abundance, and in their immediate vicinity a great quantity of pus-corpuscules and young connective-tissue cells, with very turbid protoplasm, and other characteristic appearance.

(*To be continued.*)

## ON THE\* PRODUCTION OF IMMUNITY FROM CONTAGIOUS FEVERS BY INOCULATION WITH DILUTED VIRUS.

BY D. E. SALMON, D.V.M.

A few years ago, a considerable number of extremely ingenious and instructive experiments were made by M. Chauveau, which demonstrated beyond the possibility of doubt that the active principle of virulent liquids consisted of solid particles held in suspension, and not of soluble chemical substances. These experiments were modelled after those of Spallanzani with the spermatic fluid, by which he proved so conclusively that the fecundating agent was not the *aura seminis* of the older philosophers, but existed as suspended and insoluble particles.

The idea of one series of experiments was to obtain the results of inoculations with diluted virus. If, after the dilution was carried to a certain extent, the inoculations in some cases produced the disease and in others did not affect the animals, he reasoned that this must be due to the fact of the solid particles being too few to exist in every drop of the diluted liquids, and that the disease was only caused by those drops which contained one or more of the virulent particles. If the virus was a soluble poison, it should exist equally in every drop, even of the greatest dilutions.

Practically he found that virus diluted to the same degree sometimes produced the symptoms of the malady with all their intensity, while sometimes it had no effect whatever. Vaccine virus diluted to one-fiftieth nearly always failed, and this was accepted as a proof of the theory that the active agent consisted of solid particles too few to be inserted in every inoculation puncture. Similar experiments were made by way of confirmation with the virus of small-pox, sheep-pox, and glanders.

From that time until the present, no one, as I am aware, with the single exception of Chauveau himself, has ever expressed a doubt in regard to the inability of a single disease-germ, once introduced into the tissue of the body, to produce the disease with all its characters. On the other hand, our best scientific authori-

ties have felt confident in assuming that because disease-germs evidently have the power of multiplying themselves indefinitely, when the conditions are favorable, a single one of these would produce the disease as certainly as a larger number, though it would probably require a longer period of incubation.

Strange and inexplicable as it may appear to us, this assumption is not in accordance with the truth, and if the conclusions from all of M. Chauveau's experiments had been as defective as with this series, which happily they were not, we might well have doubted the power of man to solve a problem so complicated and mysterious.

If we examine a drop of fresh vaccine lymph, with suitable precautions, we will have no difficulty in deciding that it contains many more than fifty germs, and that, consequently, if Chauveau's reasoning was correct there should have been no failures with dilutions of one to fifty.\* Again, Chauveau's experiments with diluted virus, like those of every other investigator who has attempted the same line of research, are unreliable and defective, because, first, lymph, blood, or other liquids taken from the animal body contain cells, organic *débris* and coagula to which the germs adhere and which prevent their regular diffusion in the diluting liquid; secondly, because the number of germs in a drop of lymph from different pustules, or in a drop of blood from different animals, varies to an extraordinary degree; and, thirdly, because different animals have a different degree of susceptibility in regard to the germs of the same disease. In other words, just as there is a *vis medicatrix naturæ* which enables a certain number of the individuals in which disease-germs have multiplied to overcome such germs and to recover from contagious diseases, so there is a *vis conservatrix naturæ*, by which not only a certain number of individuals resist the germs of any given disease, but which enables every individual to resist a certain number of these germs.

\* I hope that the opponents of the germ theory will forgive me for assuming that the organisms seen in virulent liquids are disease-germs, for it would be manifestly impossible for me to enter into a discussion of this question in the present article.

When, in the summer of 1880, I commenced my investigations of the effect of inoculations with diluted virus, I soon became convinced that, to obtain definite and comparable results, it was necessary to obtain a virus of a standard strength, and one free from coagula and other foreign particles which prevent the even diffusion of the virulent granules. In these experiments, fowl-cholera was the disease selected, not only because it is an excellent type of the non-recurrent contagious fevers; but also because the virus is easily cultivated outside of the body, the subjects are cheap and easily obtained, and the Department of Agriculture, with which I am connected, was anxious for an investigation in the interests of our agricultural population.

The production of a virus which should contain a practically constant number of disease-germs in every drop, which could be obtained at will and in any desired quantity, which should be free from foreign particles, certainly seemed, at the time I am referring to, a most difficult question to resolve. But, fortunately, the obstacles to our success, as so frequently happens, did not prove so insurmountable when we came to grapple with them as they had appeared when contemplated from a greater distance. The germs of this disease were easily cultivated in a broth made from the flesh of fowls, which was carefully filtered until perfectly limpid and sterilized by heat. A few germs placed in a flask of this liquid, multiplied for a certain time and then became inactive. Pasteur demonstrated that this cessation of activity was due to the exhaustion of the available nutriment. What, then, would be easier than to make a broth of a definite strength by extracting the soluble parts of a given weight of flesh with a given quantity of distilled water? If we cultivate our germs in such a broth, at a favorable temperature, we should always obtain, at the moment when the nutriment is exhausted, a virus of practically identical strength. This reasoning, I may add, has been fully justified by the many experiments which I have made with a standard virus prepared in this way.

The number of germs in a drop of such standard virus, I have never accurately determined, but I assured myself at an early stage of these researches that there were over one million six hundred thousand.

It was not until the 13th of May, 1881, that my methods of investigation were sufficiently perfected to allow the inauguration of a series of experiments by inoculating with dilutions of a standard virus. The inoculations always consisted of a single lancet puncture, and as much of the virulent liquid as would adhere to the grooved lancet was inserted between the skin and the muscles beneath the wing.

It will be necessary for me to refer here to some symptoms of this disease, in order that the reader may better appreciate the results of these experiments. Owing to some anatomical and physiological peculiarities of birds, the secretions of the kidneys are added in the cloaca to the faeces. The kidney secretion of birds is of a semi-solid consistency. It is in health perfectly white and is seldom intimately mixed with the bowel contents. This white secretion of the kidneys, which for convenience I call the urates, is easily seen and examined in the droppings. The very first symptom which is seen after inoculation with strong fowl cholera virus is a slight yellowish discoloration of the urates, due very probably to disturbance of the liver, as this organ is the one most constantly and most intensely affected in the disease under consideration. A day or two later, the droppings are more frequent and consist almost entirely of the yellowish urates mixed with an increased proportion of liquid. The fleshy parts about the head now become pale and bloodless, the temperature rises four or five degrees, the appetite is lost, the bird becomes dull, stupid, sleepy, and finally dies within two or three days from the first symptoms.

May 13, 1881, I inoculated four fowls with diluted virus; for one the dilution was 1 to 50; for the second, 1 to 500; for the third, 1 to 2,500; for the fourth, 1 to 5,000.\* With the first one the urates were slightly tinged for a day or two; with the second the urates were deeply colored, and there was a loss of appetite for a few days; with the remaining two the urates showed no signs of coloration, nor was there any apparent change in the perfect health of these birds. The most important result of the

\* Details of these experiments will be found in the Report of the Department of Agriculture for 1881 and 1882, p. 285.

inoculations was a slight circumscribed inflammation, which was noticed in each case at the point of inoculation the seventh day after the operation. This local lesion is very apparent from the increased size of the blood-vessels, and a noticeable swelling from one-fourth to three-fourths of an inch in diameter.

At the time of these experiments, I underestimated the importance of the lesion just described, for, while I thought it possible that a slight degree of immunity might be obtained by means of it, I could not conceive that a complete insusceptibility would result without the yellow urates and other symptoms of a constitutional affection. That is, it was naturally expected that a mild attack of the fever was necessary to protect against the subsequent recurrence of the disease.

Being desirous of producing the general fever of as mild a type as possible, I now inoculated the four fowls with the same virus diluted as 1 to 1,000. What was my surprise to see each one of these birds succumb to the disease in its most virulent and fatal form! I was now brought face to face with the great obstacle which has always prevented the physiological investigator from developing an exact science, and which had proved an insurmountable difficulty to those who had previously attempted this line of investigation—that is, the individual peculiarities of living animals.

It was not to be supposed that the birds in the first experiments, escaped because no germs were introduced with the diluted virus, since in a dilution of 1 to 2,500 there would be more than 600 germs to every drop, and in the dilution of 1 to 50 these would be increased to more than 30,000; besides there was the local inflammation which developed after the punctures had healed, and with two of the birds a sufficient coloration of the urates to denote constitutional disturbance.

My experiments have demonstrated, conclusively, that susceptibility and insusceptibility are only relative and never absolute conditions. A certain proportion of fowls will resist inoculation with a drop of strong virus, but if we increase the dose to ten, twenty, thirty, or sixty drops, even these may be made to contract the disease. As we decrease the dose to one-

fiftieth, or one five-hundredth, one thousandth of a drop, we find that the proportion of fowls which contract the affection becomes continually smaller and smaller. Measuring the susceptibility of fowls by means of this diluted virus, we find that it varies to an enormous extent with different individuals. In one case a bird died from inoculation with one-forty-thousanth of a drop, while another resisted the enormous dose of one drachm, or about two and one-half million times the former amount.

We will now return to our experiments in the production of immunity. The 2d of June, 1881, the two birds which had been inoculated with dilutions of 1 to 50 and 1 to 500 and recovered, received an inoculation with pure standard virus, while the two which had been inoculated with the dilutions of 1 to 2,500 and 1 to 5,000, were tested with a dilution of 1 to 500. Not one of these inoculations produced the least effect; the punctures healed and remained free from irritation as though no virus had been inserted, and the general health was not in the least disturbed.

On November 7, 1881, I inoculated two fowls with a dilution of 1 to 2,500, two others with a dilution of 1 to 5,000, two others with a dilution of 1 to 10,000, and two others with the undiluted virus. The last two died, as did one from each of the first two lots. The remaining four birds had a well-marked local lesion, but no constitutional disturbance, and remained in the best of health. December 6th, all were inoculated with a dilution of 1 to 500. This producing no effect, either general or local, they were reinoculated December 13th with undiluted standard virus. Two now showed more or less coloration of the urates, but no other signs of ill health; the appetite and general appearance were perfect throughout the experiment.

Ten fowls were inoculated November 28th with a dilution of 1 to 10,000. Of these, three died, two had mild attacks and recovered, while five had the local lesion with no general symptoms. December 21st, the seven birds which recovered from these inoculations were inoculated with the strongest virus. This was followed in one or two cases with yellow urates, but there was no loss of appetite or dulness, and all remained in excellent health.

Up to this time more than eighty birds have been inoculated

with diluted virus, though, as the remaining experiments have only recently been communicated to the Department of Agriculture, it would be premature for me to publish details at present. I may say, however, that with dilutions beyond 1 to 100,000, I have had no results, and it appears that inoculations with dilutions of 1 to 80,000 would give the local lesion and immunity to the most susceptible birds, and that the remainder could then be safely inoculated with a dilution of 1 to 10,000, which would grant immunity to all or nearly all. The experiments are still too few, however, to enable us to be perfectly certain in regard to the strength of virus to use with the greatest safety. The birds protected in this way have not only been tested with strong virus, but they have been placed in infected runs with sick birds, and in no case has there been a failure to resist the contagion.

From these experiments a number of exceedingly important conclusions may be safely drawn :

*First.*—A single disease-germ cannot produce this extremely virulent disease ; it cannot even multiply sufficiently to produce the local irritation at the point of inoculation. When a quantity of virus was introduced into the tissues, which should have contained at least twelve germs, there was no effect, either general or local, but by increasing this one-third with the same birds, the local irritation appeared.

*Second.*—It is apparent that the local resistance to the germ fails while the constitutional resistance may still be perfect, and that in this case there may be a local multiplication of the organisms for two or three weeks without any disturbance of the general health.

*Third.*—That this local multiplication of the virus is sufficient to grant a very complete immunity from the effects of such virus in the future.

From these conclusions it follows that the most virulent virus may be diluted to such an extent as to become practically a vaccine, and that in this condition it may be used safely for producing insusceptibility.

These facts are not exactly what we should have expected from theoretical considerations, but unless I am greatly mistaken,

they are on this account, even, destined to modify our ideas very materially as to the general principles underlying the contagia and the contagious fevers. At present I can do no more than refer to this aspect of the question, leaving the practical applications to suggest themselves, as I believe they will, to every one who ponders over the many mysteries connected with the phenomena of this class of diseases.

*(To be continued.)*

## PATHOLOGICAL PHYSIOLOGY.

### A STATISTIC OF THE PREVENTIVE VACCINATION AGAINST ANTHRAX.

BY M. L. PASTEUR.

According to Mr. Boutet, reporting the result of the vaccinations performed in the Department of Eure-et-Loir, the number of sheep vaccinated amounts to 79,392. The average annual death rate of these flocks for the last ten years was 7,237, or 9.01 per 100. Since the vaccination only 518 animals have died; an average of 0.65 per cent. It must be remarked that this year, probably on account of the great dampness, the mortality in this department has been only of 3 per 100. The losses there ought to have been 2,382 instead of 518 after the vaccinations.

In the flocks which were only partly vaccinated, 2,308 were and 1,659 were not operated upon. The deaths in the first amounted to 8, or 0.4 per 100, and upon the second 60, or 3.9 per 100. In this department all animals were submitted to the same conditions of soil, lodging, food and temperature, and consequently were submitted to exactly identical influences.

Among cattle, 4,562 animals were vaccinated. In this number the average yearly deaths were 322. Since the vaccinations only 11 cows have died; the annual mortality, which was 7.02 per hundred, has been 0.24 per 100.

On account of swellings, generally without gravity, taking place in horses, and as the mortality from anthrax in this species is quite low, the vaccinations has not been carried on a large scale. Only 524 horses were vaccinated, amongst which three died between the two inoculations.

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Besides showing the importance of the results thus obtained, M. Pasteur says that during the last six weeks 13,000 sheep, 3,500 oxen, and 20 horses were vaccinated, and that out of this number, 16,520 animals, not one accident has been observed.—*Gazette Medicale.*

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PASSAGE OF THE BACTERIDIE OF ANTHRAX FROM THE MOTHER TO THE FETUS.

BY MESSRS. L. STRAUS and CH. CHAMBERLAND.

According to recent experiments, thy authors have found that the placenta does not form, as it was believed, an insurmountable barrier to the bacteridie, and the law of Brauell-Davaine, which generalizes an exception, is erroneous; an error which, it must be acknowledged, was a fortunate one, and profitable to science, since it has furnished the parasitic theory of infectious diseases, one of the most apparently demonstrative arguments, when direct proofs were not as abundant as at present.

The new notion of the possibility of the passage of the bacteridie of anthrax from the mother to the foetus, may serve to explain certain cases of immunity, principally against anthrax, which seem to have been observed in some cases upon lambs, whose mothers had received vaccination while pregnant. And again, the non-constancy of this passage may explain also why, in a few cases, this immunity does not exist; and, finally, some person having observed in flocks of mothers vaccinated during pregnancy (ewes and cows), cases of abortion, there is reason to ask if these were not due to the intra-uterine contamination of the foetus by the vaccinal bacteridie, which would have killed the foetus when the more robust mother would have recovered from it.—*Gazette Medicale.*

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UPON THE CULTURE OF THE MICROBE OF GLANDERS, AND UPON THE TRANSMISSION OF THE DISEASE BY THE LIQUIDS OF CULTURE.

BY MESSRS. C. BOUCHARD, CAPITAN and CHARRIN.

After M. Christal & Kiener, who first, in 1868, had mentioned the presence of microbes in the products of glanders, the authors

have observed the existence of these organisms, not only in the parts exposed to the air, such as the nasal ulcerations and pulmonary abscesses, but also in structures not exposed—glands, the spleen and the liver.

The constant presence of these organisms, presenting always the same characters, was a supposition in favor of the pathological part, they may play in the production of the disease. To demonstrate that it really belongs to them, it was necessary to reproduce glanders in the animal, and especially in the donkey, by inoculating their microbes alone, developed outside of the diseased organism, and without being mixed with other particles coming from the body of the glandered animal. It was then necessary to proceed by the mode of successive cultures.

The authors have succeeded in obtaining the multiplication of the microbes of the glandrous products of man, horse and guinea-pigs in neutralized solutions of extracts of meat, placed in ovens at temperature of 37°.

Through successive cultures, they obtained the development of the microbe free of all mixture to the eighth culture. The growth was not obtained in vases opened to the air.

Preliminary experiments have shown them that the first and second cultures retained the virulent property of the pus of glanders.

Glanders produced in guinea-pigs by the inoculation of cultures, was absolutely alike, anatomically speaking, to that produced in the same animal by products taken directly from the horse.

Glanders, then, seems to be the second virulent disease of man whose parasitic nature is proved. This being so far demonstrated only for anthrax, amongst the virulent diseases to which man is subject.—*Academie de Medecine.*

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### EXTRACTS FROM FOREIGN JOURNALS.

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#### FRACTURE OF THE NAVICULAR BONE IN A HIND LEG.

BY M. MOLLEREAU.

The subject was an English horse, which became suddenly lame when at work, harnessed to a coupé. The animal is in great pain;

his foot does not rest on the ground, but is constantly moving forward under the influence of frequent lancinating pains. Pressure at the coronet, on a level with the quarters, seems to give rise to a great deal of pain, more manifest when the foot is rotated or carried in excessive extension or flexion. A diagnosis is made of fracture of the os pedis. On account of complications taking place, the animal is destroyed. On post-mortem, the navicular bone is found fractured in several pieces and seems to be floating in a large hemorrhagic center. The tendon of the flexor perforans is ruptured, as well as the posterior ligaments of the articulation of the os pedis, there is a sanguous synovitis of the small sesamoideal sheath. As there was no external lesion on the plantar surface of the foot, one is justified in attributing the cause of the injury to powerful muscular contraction.—*Annales de Bruxelles*.

TRAUMATIC TETANUS—NEUROTOMY—RECOVERY.

BY M. JACOTIN AND HENRYON.

A female donkey, aged 20 years, received the 25th of December, 1882, a wound on the outside of the right hind fetlock, which up to the 20th of January, 1883, has not interfered with her work. On the 24th she manifested some rigidity of the muscles of mastication, has difficulty in taking her food, and shows the evident symptoms of lockjaw. She has trismus, protrusion of the membrane nictitans, opisthotonus and rigidity of all the muscles of the legs. She is very irritable, and moves with great difficulty. The wound of the fetlock is of a dark red, soiled with mud, and is evidently the starting point of this well characterized case of tetanus. The treatment consisted in the operation of plantar neurotomy upon the external plantar nerve, and deep cauterization with the iron of the wound of the fetlock. A slight improvement was observed on the next day. On the 30th of January the walking is better, legs less stiff, the jaws moving a little better. The wound goes rapidly on towards cicatization. On the 1st of February the animal is gay, her appetite normal, movements much improved; the next day she is discharged, convalescent.—*Archives Veterinaires*.

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**HEMIPLEGIA CAUSED BY PRESSURE UPON THE BRACHIAL PLEXUS IN THE HORSE.****BY M. L. TRASBOT.**

The subject of this article was a heavy draught horse, which was operated on for a deep punctured wound of the left fore foot on the external side of the anterior zone of the foot. The animal had been thrown on the right side, and the left fore leg secured on the hind leg of the same side. The operation was performed in less than fifteen minutes, the animal struggling violently during the whole time it lasted. On getting up he showed paralysis of the right fore leg, which was followed several days after by a loss of power on the hind leg of the same side. These two complications, however, subsided under proper treatment, and some ten or fifteen days later he was returned to his work. This is an interesting case of progressive irritation of the nerves of the left leg which extended to the marrow and gave rise to the manifestation of the hemiplegia.—*Archives Veterinaires.*

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**DYSTOKIA IN A COW—HYDROCEPHALIC FETUS—ANTERIOR LEGS CROSSING EACH OTHER—DECAPITATION—EXTENSION OF THE LEGS—RECOVERY OF THE MOTHER.****BY M. DAIRE.**

The author, being called to give his attention to a cow in labor, finds on exploration that the bottom of the vagina is filled by an obtuse mass, covered with hair, which at the first sensation seems to be a muscular part, the croup, perhaps. Following the investigation two moveable prolongations are detected—the ears. Towards the inferior part of the mass is felt the imperfectly developed jaws. It is a case of hydrocephalus. Attempts to engage the head in the proper condition failing, a large incision is made with the *bistouri à serpette* through the skin covering the cranium, whose frontal bony structure is missing, and a quantity of serous-mucous fluid, resembling the amniotic liquid, is allowed to escape. The mass then subsides, and a loop of rope secured on the neck; and the head, placed in proper condition, is drawn into the vagina.

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Finding it impossible to bring the foetus out, the head is cut off, the front legs, which in being crossed are pressing against the anterior border of the pubis, are straightened, and by moderate and regular traction the animal was happily delivered, the operation lasting about half an hour. The cow remained in perfect health after the operation.—*Archives Veterinaires.*

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## REPORTS OF CASES.

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### DISLOCATION AT THE HOCK JOINT OF A COW.

Last month a valuable short-horn cow, belonging to the Ohio State University, slipped as she was going into the stable, and fell upon her side. On attempting to get up it was seen that the near hind leg was dislocated outwards and forwards at the hock joint. The end of the tibia formed a prominence on the inside of the limb, while on the outside the calcis and astragalus were equally out of line. The cow, although in good flesh, was too valuable to be slaughtered, and therefore an attempt was made to reduce the dislocation. A broad strap was put round the leg close below the joint, and with this an assistant drew the leg very gently but forcibly backwards. As soon as the displaced bones were brought opposite their proper places sudden pressure on the end of the tibia with one hand and a little rolling backwards, and pressure inwards upon the astragalus with the other hand brought the bones into place with the usual snap. The time occupied in reducing the location was less than will be required to read this brief report of the case. Immediately after the reduction the joint was bathed in warm water to allay pain and tenderness; subsequently when the joint became somewhat swollen and hot it was frequently bathed in cold water; when the inflammation had subsided a little oil of turpentine was rubbed about the joint. The cow is still lame, but is able to bear her weight on that limb; it is rapidly improving.

The writer begs to call attention to this case in order to draw from it a lesson. Here was a serious injury, such as would usually prompt the slaughter of an animal, oftentimes at great pecuniary

loss. In this instance, however, no loss was sustained, and the injury was easily relieved by ordinary surgical skill. Is it not probable that when such accidents occur many valuable animals are slaughtered unnecessarily? In such cases would it not be better to summon a veterinarian than to seize the butcher's knife?

N. S. TOWNSHEND.

*Columbus, Ohio, April 5th, 1883.*

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A PECULIAR FORM OF SKIN DISEASE FOLLOWING LAMENESS.

PHILADELPHIA, PA., February 26, 1883.

On the 23d of October last, I was called to see a dark brown geld.  $15\frac{1}{2}$  hands, about eight years old. This animal I was told, had been lame on several occasions during the preceding three weeks, and at the time I found him lame in the near hind limb; lameness characteristic of that in the lower part of the extremity. After a very careful and repeated examination, I located the trouble at the fetlock joint, but preferred to wait another twenty-four hours before making a positive diagnosis. At this point there was increased heat, a little swelling, but no appearance of a strain or injury of any kind. I placed the animal under alternative treatment of dram doses of the iodide and nitrate of potass, and the same amount of carbonate soda; believing that I had a case of rheumatism to deal with. I also ordered the parts bathed with soap liniment. Visited the next day, symptoms and conditions the same, except slight loss of appetite and an elevation of one degree in his temperature. Two days later, on calling to see my patient, I was confronted with a well marked case of hip-joint lameness, with considerable heat at the latter articulation. The fever at the fetlock had disappeared. Continued the same treatment, as I felt more satisfied that the lameness was rheumatic in character. On the 25th no better, and I gave my patient a purging ball of six drachms of aloes, which acted promptly and well. Calling on the 27th, I found my patient all right, lameness gone, no fever in any part of the limb, and to all appearances as well as before. Feeling uncertain as to whether the alternatives or purging removed the lameness, I reminded the owner of the probability of its return. About three days had elapsed when

I was hurriedly sent for to see this horse, but was unable to visit the horse until another twenty-four hours had passed by. Imagine my surprise to find my previous fine looking patient an object of pity and disgust; from the tip of the nose to the base of the tail, he was marked with ragged dirty edged ulcers, from which issued a bad odored discharge of a sebaceous character. Where these had not broken I found a large number of poorly defined elevations of the skin, which would raise up and run their course in about thirty-six hours. Little heat was found present, prior to their bursting and discharging a very viscid and whitish exudate. These patches varied in size from a ten cent piece to five or six inches in diameter, though the latter usually represented several smaller ones united. They started at the point of the shoulder, spread to the neck, head, and then the limbs and back, and twenty-four hours had scarcely elapsed from the first appearance, before he was literally covered with them. The subcutaneous glandular structures seemed in perfect condition and these ulcerations wholly confined to the skin. Uncertain as to what I had to deal with, I decided to adopt the following form of treatment: Three times daily he received drachm doses of Donovan's solution of arsenic, with three pills, each containing twenty grains of sulphate cinchonidia. Externally a wash composed of the borate and bicarbonate of soda. Two days later there were no new ones apparent, and in four days all had run their course, and in less than a week there were left no traces of the diseased process, and he was placed at work, since when he has not shown any lameness or other diseased condition. Desirous of hearing from other practitioners who have had similar cases, and their diagnosis, I convey these records to the readers of the *Review*.

W. HORACE HOSKINS.

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## LIVE STOCK GROWERS' ASSOCIATION OF WYOMING TERRITORY.

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At the annual meeting of the Live Stock Growers' Asssociation of Wyoming Territory, Dr. Hopkkins, the State Veterinarian,

presented the report of his labors in relation to his position since he was appointed, showing the condition and the extent of diseases amongst the cattle of the Territory. The report, which was full of wise suggestions, was accepted and highly appreciated.

At the same meeting the following was submitted and adopted:

*Whereas*, The existence of contagious pleuro-pneumonia among the cattle in the States of New York, New Jersey, Pennsylvania, Maryland and Virginia threaten the prosperity of the stock growing industry, and

*Whereas*, In consequence of the existence of said contagious disease, England has placed such restrictions on the cattle trade as to cause an annual loss of \$6,000,000 to stock growers, and

*Whereas*, State laws have failed to "stamp out" the contagion or otherwise control the movement of cattle from the infected localities to healthy States, and

*Whereas*, By reason of the failure of State laws to protect this industry, Federal legislation is a necessity; therefore,

*Be it Resolved*, That this Association appoint a committee of five to unite with Stock Associations and State Agricultural Societies of the different States, in calling a congress of Stock Growers to meet in Chicago, Ill., in the month of September, 1883, (at the time of the fat stock show), for the consideration and the securing of such national legislation as will prevent the spread of and stamp out contagious pleuro-pneumonia from the States now infected.

Upon motion, it was ordered that the chair should appoint a committee of five, to whom would be intrusted the duties as described in the above resolution. The chair took the appointment of the committee under advisement.—*Cheyenne Daily Sun.*

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## COLLEGE COMMENCEMENTS.

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### ONTARIO VETERINARY COLLEGE.

The annual presentation of the prizes and diplomas to the successful students attending the Ontario Veterinary College, took place on Friday. Prof. Smith, President of the College,

occupied the chair. Among those present were his Honor the Lieutenant-Governor, His Worship the Mayor, Professor Buckland, Dr. Thornton, Major Lewis, Mr. Gamble Geddes, A. D. C.; Mr. Henry Wade, Secretary of the Agricultural and Arts Association; and Mr. Elliot, President of the Ontario Veterinary Association.

Prof. Smith welcomed the visitors to the College and stated that the session just closed had been the most successful of any session in the history of the College. During the session there were 150 students in attendance, and at the last examination 86 juniors entered the College. He called upon Dr. Duncan to read the list of successful candidates, as follows:

#### PRIZE AND HONOR LIST.

##### *Seniors.*

Pathology: Silver medal, C. C. McLean; 2d prize, H. F. James; 3d, H. B. Adair. Honors: Blank, Blackall, Carter, Dunn, V. L. James, Jopling, Newton, Plank, Sallade, Line, Stimpson, Smith, A. Thompson, Van Zant.

Anatomy: Silver Medal, H. F. James; 2d prize, C. C. McLean; 3d, H. B. Adair and J. Newton (equal). Honors: Dunn, V. L. James, Jeffery, Jones, Jopling, Kerr, Plank, Sallade, A. Thompson, Wight.

Entozoa: 1st prize, J. Newton. Honors: R. W. Carter, C. M. Dunn, H. F. James, W. Jopling, M. W. Plank, J. W. Sallade, A. Thompson, Stimpson.

Microscopy: 1st prize, C. M. Dunn. Honors: Dickinson, V. L. James, Queen.

##### *Seniors.*

Physiology: 1st prize, H. F. James; 2d, Sallade; 3d, Dunn. Honors: Adair, Blackall, Blank, Courtenay, Fisher, Jopling, McLean, Newton, Plank, Line, A. E. Thompson, Wight.

Chemistry: 1st prize, W. Jopling; 2d, J. Newton; 3d, S. Dickenson. Honors: Armstrong, Adair, Dunn, McLean, Sallade, Stimpson, A. Thompson, Wight.

Anatomical Preparation: Silver Medal—H. B. Adair; 2d, V. L. James.

**Materia Medica:** 1st prize, H. F. James; 2d, Sallade; 3d, Line. **Honors:** Adair, Dunn, Dickenson, V. L. James, McLean, Newton, Smith.

**Breeding and Management of Stock:** 1st prize, \$20 in books (by Hon. Commissioner of Agriculture), Wm. Jopling; 2d, \$15 in books (Council of Agriculture and Arts Association), H. F. James; 3d, \$10 in books (Agriculture and Arts Association), H. B. Adair.

**Gold medal for best general examination, presented by the Ontario Veterinary Medical Association,** H. F. James, Ottawa. **Honors:** Adair, Jopling, V. L. James, McLean, Sallade.

LIST OF GRADUATES, 1882-83.

The following gentlemen graduated for the session just closed: Harry B. Adair, Paris, Ky.; Frank H. Armstrong, AuSable, Mich.; Vinton A. Berry, Marion, Ohio; James E. Blackall, Birr, Ont.; Cyrus J. Blank, Coopersburg, Pa.; Elmer E. Bowen, Tyre, N. Y.; Robert W. Carter, Guelph; Edward St. Geo. Courtenay, Waterford, Ireland; John B. Crane, Sharon Centre, Ohio; Samuel S. Dickenson, Zion, Ont.; Charles M. Dunn, Hamilton; Jas. W. Fisher, Baillieboro, Ont.; Edward R. Forbes, Toronto; William R. Howe, Cleveland; V. L. James, Springfield, N. Y.; Harry F. James, Ottawa; George P. Jeffery, Toronto; James Johnston, Dundee; Robert A. Jones, Simcoe; William Jopling, Parkhill; Jessie R. Keeler, Harleyville, Penn.; Thos. Kerr, Wingham; Charles C. McLean, Meadville, Pa.; Geo. Murray, Ridgetown; John Newton, Weston; John Perdue, Orangeville; Mortimer W. Plank, Uxbridge; Marshall M. Poucher, Oswego, N. Y.; Tipton J. Queen, Salineville, Ohio; John F. Quinn, Edmonton, Ont.; Wm. R. Rowe, Rondeau; James W. Sallade, Reading, Penn.; Allen S. Shiner, Shinerville, Penn.; Merritt W. Sine, Sterling, Ont.; James F. Smith, Port Ryerse, Ont.; Jacob Stallman, Rochester, N. Y.; John G. Stewart, Brantford; Robert W. Stewart, Mount Victory, Ohio; George W. Stimpson, Mackinaw City, Mich.; Albert E. Thompson, Strathroy; Joseph B. Thompson, New York; Henry Van Zant, Mongola, Ont.; Jonathan C. Whitney, Allen, Mich.; Willard E. Wright, Millbury, Ohio; James Addison, Newmarket; J. H. Schoonmaker, New York.

## PRIZE AND HONOR LIST.

*Juniors.*

Anatomy: Silver Medal, L. C. Tiffany; 2d, J. F. Reed; 3d, G. W. Butler. Honors: G. G. Blank, E. Courtney, A. Harthill, F. Hewitt, J. S. Ormsby, H. G. Reed, J. Sutcliffe, E. A. Steinburg, John Wilson, James Wilson, H. Waldron.

Pathology: 2st prize, J. F. Reed; 2d, L. C. Tiffany; 3d, G. W. Butler. Honors: Blank, Courtney, Cruikshank, Eiserman, Graham, Harthill, Hewitt, Kincaid, Livingston, McArthur, Mason, Ormsby, Barker, Reed, Shaw, Stork, Steinburg, Sutcliffe, Tenant, Waldron, James Wilson, John Wilson.

Chemistry: 1st prize, Silverthorne; 2d, Ardiel.

Physiology: 1st prize, H. G. Reed; 2d, J. H. Reed; 3d, W. F. Berry. Honors: Butler, G. W. Kincaid, W. R. McArthur, L. C. Tiffany, Jas. Wilson, John Wilson, H. Waldron.

## THE GOVERNOR'S ADDRESS.

Lieutenant-Governor Robinson then addressed the students assembled. He had heard a great deal about the success of the College within the past few years, as well as the great number of graduates who had gone to practice their profession in this country, armed with diplomas of the College. He was glad, as Lieutenant-Governor of the Province, to show by his presence his appreciation of the College. (Applause.) He thought the benefits which this College conferred upon the Province could hardly be exaggerated. He explained to those who had received the prizes that it was to a very great extent a guarantee of success and prosperity in after life. The young men, however should not run away with the idea that there was not other qualities of as great a value to obtain in order to insure their success in life. (Applause.) They should take their President, Dr. Smith, as a model, a man who had by his force of character and other qualities been successful in the advancement of the College. In the Province of Ontario were hundreds of farmers, and the education received by the students of this college would be of great benefit to them and the prosperity of the country at large. One advantage of the

college would be that the educated and reliable professional man would take the place of the unreliable and dangerous "quack." (Applause). He had no doubt when the students went into the country they would do justice to the education they had received. (Applause.)

Mayor Boswell made a brief speech, in which he explained that he had received an anonymous letter stating that the veterinary students were in the habit of practising vivisection, but he was glad to find from the President of the College that this was untrue.

#### MONTREAL VETERINARY COLLEGE.

The examinations of this institution, which have been in progress during the last ten days, were concluded yesterday by the final oral examination by the Board of Examiners appointed by the Council of Agriculture, consisting of the following gentlemen: F. S. Billings, M. V.; Williamson Bryden, V. S., Boston, Mass.; C. J. Alloway, V. S., Montreal; J. A. Couture, V. S., Quebec; A. McCormack, V. S., Ormstown; Chs. Levespue, Berthier en haut, and Dr. George Leclerc. The following gentlemen were present and assisted in the exercises: Hon. G. Ouimet, Commissioner of Public Instruction, in the chair; supported by Prof. R. P. Howard, Dean of the Medical Faculty of McGill University; Prof. Baudry, representing Victoria University; J. M. Browning, Vice-President of the Council of Agriculture; Geo. Leclerc, Secretary, and Rev. Father Pilot, Mr. W. S. Blackwood, A. Sommerville and Casgrain, the Educational Committee of the Council, Prof. Osler, Prof. Daubigny, Dr. Sutherland Baker, and a large number of visitors.

Hon. Mr. Ouimet spoke of the good work done by the college, and proceeded to distribute prizes and diplomas, complimenting the recipients on their success.

The following students enregistered during the past session:

Wm. B. Abbey, New Bedford, Mass.; N. G. Blanchard, N. S.; A. A. Keys, Ont.; W. G. Johnson, P. Q.; Geo. Sangster, Q.; W. P. Robins, Q.; A. W. Clement, Mass.; W. F. Scott, Q.; James Brodie, Q.; C. J. Davis, P. Q.; C. D. Bancroft, Q.; E.

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P. Ball, Q.; B. A. Pomeroy, Q.; C. L. Morin, Q.; M. Piche, Q.; J. A. Bishop, Q.; R. W. Hopper, Q.; H. K. Durfee, Mass.; Charles G. Lamb, Mass.; Wm. Bell, Ont.; H. C. Kingman, Mass.; E. C. Crevier, Q.; A. Beauchamp, Q.; W. H. Klock, Ont.; John Magor, Q.; John Henry, Iowa; A. E. Cross, Q.; J. T. O'Connell, Q.; Mass.; C. Drouin, Q.; J. Labelle, Q.; T. G. Brosseau, W. S. Renner, O. D. Fortin, Q.; J. Lanctot, Q.; R. Lapointe, Q.; Fred. Paquin, Q.; H. Pilon; C. P. Drake, Q.; A. C. Rouif, Q.; P. A. Gindun; T. Beauchamp; W. P. Mayo Mass.; Ed. W. Hoare, Man.; W. S. Mahon, W. I.; J. W. Sparks, Mass.

The following students passed in the undermentioned subjects in order of merit:

Botany, Prof. J. W. Dawson, McGill College—Scott, Durfee, Lamb, Mahon, Sparks, Magor, Keyes, and Abbey.

Chemistry, Prof. Girdwood, McGill College—Blanchard, Kingman, Davis, Cross and Mayo,

Physiology, Prof. Osler, McGill College—Blanchard, Ball, Kingman.

Materia Medica, Dr. James Bell, Veterinary College—Kingman, Bancroft, Blanchard, Ball, Cross, Davis, Klock.

Anatomy, M. C. Baker, V. S., Professor—Brodie, Bell, Clement, Pomeroy, O'Connell, Henry, Duncan, Robins, Bancroft.

Practice of Veterinary Medicine and Surgery and General Pathology, D. McEachran, F. R. C. V. S., Professor—Bell, Clement, Brodie, Henry, Pomeroy, Duncan, O'Connell, Bancroft and Robins.

Physics, Professor Girdwood, McGill College—Lamb, Durfee, Scott, Hoare, Mahon Magor, Abbey, Keys and Sparks.

#### FRENCH CLASSES.

Botany, Prof. Roy, Victoria College—A. Beauchamp, T. Beauchamp, Brosseau, Fortin, Lapointe, Piche, Rouif, Turcot.

Physiology, Prof. Beaudry, Victoria College—Morin, Labelle.

Chemistry, Prof. Munier, Victoria College—Morin, Labelle.

Obstetrics, Prof. M. Daubigny, V. S., Veterinary College—Crevier, Paquin, Drouin, Pilon.

**Materia Medica**, M. Daubigny, Veterinary College—Paquin, Crevier, Drouin, Pilon.

**Anatomy**, M. Daubigny, Veterinary College—Paquin, Crevier, Drouin, Pilon.

**Practice of Veterinary Medicine and Surgery, and General Pathology**, M. Daubigny, V. S.—Paquin, Crevier, Drouin, Pilon.

The following candidates passed the examinations successfully and received the diploma of the College: Messrs. Brodie, Bell, Clement, Crevier, Henry, O'Connell, Pomeroy, Paquin and Robins.

#### PRIZES.

The following prizes were awarded English classes:

**Seniors**.—Best general examination in all subjects, silver medal, the gift of the Council of Agriculture, won by Jas. Brodie.

**Practice of Medicine and Surgery**—Valuable Microscope, the gift of David Morrice, Esq., won by Wm. Bell; 2d prize, A. W. Clement.

**Anatomy**—1st prize, Jas. Brodie; 2d, Wm. Bell.

**Practical Dentistry**—Instruments, the gift of Williamson Bryden, Esq., V. S., won by H. J. O'Connell.

**Juniors**.—**Materia Medica**—H. C. Kingman.

**Anatomy**—First prize, H. C. Kingman; 2d prize, M. G. Blanchard.

**Practice of Medicine and Surgery**—First prize, H. C. Kingman; 2d prize, E. P. Ball.

**Botany**—Gift of Prof. Dawson, won by W. F. Scott.

#### FRENCH CLASSES.

Best general examinations, silver medal, the gift of the Council of Agriculture, won by Fred. Paquin; 2d prize, valuable instruments, the gift of L. H. Massue, Esq., M. P., President of Council of Agriculture, won by E. C. Crevier.

**Obstetrics**—The gift of M. Daubigny, won by E. C. Crevier.

**Anatomy**—The gift of Geo. Leclerc, M. D., won by Fred. Paquin.

At the conclusion of the exercises, Mr. Billings, Boston, complimented the Dominion on having, in the Veterinary College of

Montreal, the only institution of the kind doing honest work on the continent, and they had reason to be proud of having a gentleman at its head who, more than any one else, combined in his teaching and daily life science and practice, and whose honest efforts were devoted to the elevation of the profession.

Professor McEachran was next called upon and took advantage of the occasion to compliment the students on their honest hard work during the session, congratulated the successful and sympathized with those who had failed in passing the severe examinations to which they had been subjected. He pointed out advantages of a high standard of education on account of the rapid progress of the profession. No profession holds out, said he, more brilliant prospects than did the one they now entered, but they must not expect to gain success without a struggle, but by perseverance they were sure to succeed. He wished them all success. He next paid a high tribute to McGill and Victoria Colleges, thanked those gentlemen who gave prizes, especially David Morrice, L. H. Massue, Williamson Bryden and others, also the examiners who had come long distances to assist them, the Council of Agriculture and the Government of Quebec for their valuable support, and those gentlemen who had assisted them at the examinations.

Professor R. P. Howard, Dean of the Medical Faculty of McGill, next addressed the students and graduates, complimenting them and their teachers on their success, and indicated that the Faculty, seeing the necessity for extending the field of study, had decided to add to their College a chair of comparative pathology, which they hoped soon to see accomplished. He could say for the Medical Faculty that they had always great pleasure in doing all they could to assist the Veterinary College, which was looked upon by them as one of the most useful institutions in the province.

Professor Beaudry next followed in a similar strain for Victoria College.

Dr. Osler, J. M. Browning and others followed in eulogistic remarks of the College and its Principal.

The proceedings terminated by a vote of thanks to Hon. Mr. Ouimet.

A meeting of the Veterinary Medical Association was held immediately after, when the diplom. was conferred on Wm. Bell, Jas. Brodie, A. W. Clement, E. C. Crevier, Jno. Henry, T. J. O'Connell, B. A. Pomeroy, Fred. Paquin, Paul Paquin, also on Mr. F. S. Billings and Prof. Daubigny. —*Montreal Gazette.*

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### SOCIETY MEETINGS.

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#### ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The sixth annual meeting of the Alumni Association of the American Veterinary College was held in the lecture hall of the college, on February 28th, at 2 p. m. The meeting was called to order by the president, Dr. Miller. The secretary, Dr. Coates, then called the roll, and members representing the following classes responded: '77, '78, '79, '80, '81, '82 and '83. An amendment added to the by-laws was passed, fixing the initiation fee at one dollar. Dr. W. J. Coates was elected a member of the Board of Trustees, to represent the Alumni Association, for six years. The members of the class of 1883 were then admitted to membership. The following officers were elected for 1883: President, Dr. R. A. McLean, Brooklyn, N. Y.; Vice-Presidents, Drs. Geo. H. Bailey, Portland, Me., and D. J. Dixon, Hoboken, N. J.; Secretary, Dr. W. Horace Hoskins, Philadelphia, Pa.; Treasurer, Dr. M. Bunker, Newton, Mass.; Librarian, Dr. L. M. Crane, New York, N. Y. The newly elected president after taking his seat, appointed an Executive Committee for the ensuing year, as follows: Drs. Coates, Miller, Johnson, Michener, Dixon and Kemp.

Dr. Geo. H. Bailey furnished the Association amusing records of evidence given to the courts of Maine, on Roaring, by one of the practitioners of veterinary surgery in that State.

DR. W. J. COATES, *Secy. pro tem.*

DR. W. HORACE HOSKINS, *Secy. elect.*

In order that the secretary of the Alumni Association may be enabled to compile a history of the same, to be presented at the next meeting, he earnestly desires that each graduate of the

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school and member of the Association furnish him with their present address, that they may be conferred with, to further this important work.

W. HORACE HOSKINS, *Secy.,*  
254 S. 15th St., Philada., Pa.

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#### NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, on Tuesday evening, April 10th, 1883, at eight o'clock, p. m. The President, Dr. Liautard, being absent, the meeting was presided over by Vice-President Dr. Coates. The following gentlemen responded to the roll-call: Drs. Lockhart, Burden, L. McLean, Coates, Michener, Crane, Leighton and Devoe.

The minutes of the last meeting were read and approved. Dr. Michener read a paper on intestinal diseases, and made strong objections to the use of trocar and cannula in cases of tympanitic colic in horses, which provoked a lively discussion amongst the members present.

Dr. Crane, in answer to a query, said that he had punctured in as many as one hundred cases of flatulent colic, and every one of the cases were relieved by the operation.

Dr. Lockhart's success in use of trocar and cannula not good; believes in administering internal remedies, as he has found that his cases generally result favorably by so doing.

Dr. Burden favors the operation, and recites a case where the animal was punctured nine times, and each time relieved, as there was a flow of gas in large quantities succeeding each puncture.

Dr. L. McLean says that in tympanitic colic some remedy should be given to arrest the fermentation and accumulation of gases, and he has given carbolic acid, and never hesitates to puncture, and has had no bad results. Has punctured cases at night and sent them to work the next morning.

Dr. Michener advises the use of bi-carbonate of soda, as an antiseptic to arrest the fermentation, and also says that indiscriminate puncturing is wrong: one of the bad results being abscesses

in the muscular tissues. Has had but one death in fifty cases, and did not puncture, and thinks use of trocar and cannula should be a dernier resort. Dr. McLean replied that effects must be relieved, and it is not good practice to wait until the last stages, but that puncturing must be done early to have good results.

A vote of thanks was extended to the essayist.

A communication was read from Dr. Liautard, presenting his regrets to the Association for his inability to be present.

The Board of Censors reported favorably on the names of Drs. Kay and Critcherson, Outerbridge and Burget, who were proposed for membership at the meeting of March 13. There being no objections, the Secretary cast a ballot for these gentlemen, and they were elected to membership.

Dr. Coates proposed the name of Dr. S. H. Johnson for membership, which was referred to Board of Censors.

Dr. Coates was appointed essayist for the next meeting, and will read a paper on broken wind.

Motion to adjourn was carried.

W. S. DEVOE, *Secy.*

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#### KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The monthly meeting of the Keystone Veterinary Medical Association was held on the evening of March 23d, 1883. The President, Dr. Miller, presiding. Reports from members showed that a bill was now before the Legislature of the State, to confine the practice of veterinary surgery to graduates, but upon examination it was found to be the same bill that had been before the House on several different occasions, and to be for the benefit of the members of the Penn. College of Veterinary Surgery, a school existing at present only in name. Dr. A. Glass being called upon for his essay, presented one relating to purpura hemorrhaagica, and referred especially to the successful use of spirits of turpentine in several cases. In the cases referred to, where not a very great elevation of temperature was present, large and oft repeated doses were not followed by any irritation of the urinary organs.

Dr. Miller reported a very interesting case of total paralysis, resulting from a fracture of the parietal bone, with partial dislocation of the second intervertebral articulation of the neck, the result of a fall and complete somersault. After reports of other cases from the members, the meeting adjourned.

W. HORACE HOSKINS, *Secy.*

Cerebro-spinal meningitis has broken out in Philadelphia and Camden, N. J., to some extent, the writer having had several cases within the past few weeks. Those seen were either along the river front or down in the lower parts of the city, where surface drainage only existed.

W. HORACE HOSKINS.

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## CORRESPONDENCE.

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### A CASE OF FARCY.

MORRISON, WHITESIDE Co., ILL., }  
March 20th, 1883. }

*Editor Veterinary Review:*

MY DEAR SIR,—As you thought that my last feeble effort as a contribution to the AMERICAN VETERINARY REVIEW was worthy of a place in the last volume, I will now send another case that was of much interest to me at the time, on account of its occurring as it did—a case diagnosed as *farcy*.

The case as follows: As I was passing through a neighboring pasture on one of my visits, I noticed that one of the horses pasturing in the field was very bad with the strangles; a very large abscess, formed under the jaw, was discharging thick yellow pus, streaked with blood. The animal affected was about fifteen years old, with no former disease to trouble her. The other horses in the field were from one to three years old—six in number. I was interested in the affected animal, as it was near my own place. I stopped as I went through the pasture and examined the mare, made my own prognosis, and notified the owner to take care of his sick animal so that none of the other colts might get inoculated with what I pronounced malignant virus; but the owner thought

it was useless to care for the affected one, and let it remain in the pasture. It being in the month of July, when flies are bad, horses naturally collect in a bunch to ward off any fly that may trouble them. In this case the mare with the strangles would extend her head over the neck and back of the other colts, and rub her discharging abscess well into the skin of those with whom she came in contact. The result was as follows: About one week after I was called to see the owner's best three year old colt, for what he thought a simple case of strangles. On examination, I found the lymphatic system in a horrid state; the vessels corded, and the glands swollen to form what eventually proved to be farcy buds. I pronounced it a case of farcy, and said treatment was useless, and also dangerous to himself and other horses. But he was reluctant to yield, and urged treatment to try the effect of remedies. I finally yielded to his entreaties, and a hospital was made, isolated and away from all other buildings. The colt was put in the stable prepared for him, and all ulcers that were discharging cleansed, with the precaution of a sponge tied to the end of a stick to prevent any unnecessary contact of hands with the parts affected. The colt being reduced, stimulents were given.

On my visit the next day, the colt seemed to feel better, but the pulse was weak, countenance dull, the ulcers or buds were discharging a thick and glutinous substance adhering to the hair.—Continued same treatment.

Two days after the owner came to my place and requested me to go and see the colt, as it was very bad to attend to on account of the odor emitted. When I reached the place, I threw the door open to let in fresh air, for the stench was most horrid; and looking at the animal it was a picture of misery, covered all over with ulcers discharging, heavy nasal discharge, limbs swollen and much emaciated. I ordered the colt destroyed at once, as the risk to treat further was hazardous. Consequently the colt was led about ten rods off to the burial place, and it was with great difficulty that it could reach the spot, dropping down from exhaustion at the place. A slight tap with the poll ax put him out of all further misery.

The interesting point in the above case is—was that case of farcy

superinduced by the putrid discharge from the abscesses of the mare affected with strangles, rubbing on the neck and back of the colt, so as to poison with the malignant virus flowing from the submaxillary abscesses? One other point is, that the mare recovered from her complaint, and it left no bad symptoms in its track; also that the other five colts was not affected with either strangles or farey.

From your long experience with diseases, you will be able to solve the problem. I have been rather lengthy, but you will be able to glean enough to get my case.

Your most ob't serv't,

J. B. GALT.

[It is probable that the colt did not have farey proper, but a complicated form of malignant strangles accompanied by septicemic symptoms.—ED.]

#### TWO HUMAN LIVES SACRIFICED ON THE ALTAR OF IGNORANCE.

George Conaway was taken sick on the 4th of March; symptoms strongly simulating catarrhal fewer, followed by copious discharges from the nose, swelling over the frontal sinus of the right parotid gland, finally formation of pustules and bullæ—distributed over the whole surface of the body; died March 22d, aged seventeen years and a few days.

Wellington Conaway, father to George, taken sick March 23d. Complained of pains in the chest, the swelling of the submaxillary glands, discharge from the nose, formation of pustules, etc.; died April 2d.

Presumably the father took the disease from the son, having been in constant attendance on him during his sickness. Four physicians examined each case when the pustules began to appear, and diagnosed it malignant erysipelas. On the 1st of April five physicians met in consultation, and then agreed to call it "equinia."

I notified one of the physicians on the 13th of March (two days after the boy was taken sick), of the existence of glanders among Mr. Conaway's horses, putting him on his guard in reference to the probable ailment of the son.

On the 2d of April I examined the horses on Mr. Conoway's farm, and condemned six out of fifteen head as having glanders. On the 6th, accompanied by J. J. Reiners, V. S., of Morrison, Ill., made a second examination and found one more horse showing evidences of the disease. Two of the animals were shot immediately, the remaining five were placed in quarantine, awaiting the action of the town Board of Health. The statutes of our State do not contain the word glanders. We have not one word of law in relation to the disease.

Mr. Wellington Conaway, thirteen miles north of Sterling, was a so-called "hoss doctor;" he cured all cases of nasal gleet; his library consisted of Dr. Stewart's book; his knowledge of materia medica did not extend beyond an infusion of tobacco and stramonium. He was totally unable to distinguish glanders from nasal gleet, consequently had one or two horses die each year of the former disease.

One of the neighbors told me that one of Mr. Conaway's dogs was suffering from boils and a discharge from the nose for several months last summer, and finally died. Comment is unnecessary.

M. R. TRUMBOWER, V. S.

STERLING, ILL., April 9th, 1883.

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### NEWS AND SUNDRIES.

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**QUARANTINE REGULATIONS** will go into effect at New Orleans from May 1st.

**HOG CHOLERA** has caused the death of four to five thousand dollars worth of swine near Providence, R. I.

**PETITION.**—The New York State Dairymens' Association has petitioned Congress to appropriate \$5,000,000 to stamp out the lung plague among cattle in the United States.—*Farmers' Review*.

**FOOT AND MOUTH DISEASE.**—Severe ravages of this disease in England, and which are growing worse day by day, have created an increased demand for American cattle.—*American Cultivator*.

**DIPHTHERIA IN FOWLS.**—Dr. L. Roth, of Kitzingen, observed

an epidemic of diphtheria in a flock of hens. It was caused by the slops from a room in which two children had been sick with diphtheria, being thrown upon the dung heap in the yard where the fowls were kept.—*Medical Record*.

**PRECAUTION NEEDED.**—The recent discussion in the agricultural papers concerning the sale of sheep at the Fat-Stock Show in Chicago, said to have been affected with foot-rot, shows pretty clearly the dangers attending these stock shows, and the means they may prove for spreading contagious diseases. No such shows should admit animals of any description without a veterinarian's certificate attesting their perfect health.

**INOCULATION OF SCARLATINAL VIRUS AS A PROPHYLACTIC AGAINST SCARLET FEVER.**—Dr. Stickler of Orange, N. J., is making some investigations in the use of equine scarlatinal virus to test its value as a prophylactic against human scarlet fever. The results will soon be published.—*Medical Record*.

**AN INSTANTANEOUS LIGHT.**—Such in a word is the unique apparatus on exhibition at the rooms of the Portable Electric Light Co., 22 Water Street, Boston. It occupies the space of only five square inches and weighs but five pounds, and can be carried with ease. The light, or more properly lighter, requires no extra power, wires or connections, and is so constructed that any part can be replaced at small cost. The chemicals are placed in a glass retort; a carbon and zinc apparatus, with a spiral platinum attachment, is then adjusted so as to form a battery, and the light is ready. The pressure on a little knob produces an electric current by which the spiral of platinum is heated to incandescence. The Portable Electric Light Company was recently incorporated, with a capital of \$100,000, under the laws of Massachusetts. The usefulness of the apparatus and the low price (\$5) will no doubt result in its general adoption. Some of the prominent business men of the State are identified with this enterprise. In addition to its use as a lighter, the apparatus can also be used in connection with a burglar-alarm and galvanic battery.—*Boston Transcript*.

INTRODUCING THE PASTEUR SYSTEM.—Dr. D. E. Salmon, D. V.M., has for several years devoted much time and experiment to the study in which Pasteur has deservedly achieved so high a reputation the world over—the prevention or amelioration of contagious diseases among live stock, by inoculating sound animals with a form of the virus of the disease, that will prevent a fatal attack subsequently, without endangering life from the mild attack produced by the inoculation. The method adopted by Dr. Salmon for lessening the virulence of the virus so as to fit it for inoculating, or rather vaccinating, purposes, differs considerably from the “attenuating” system of Pasteur, and we are glad to learn that the Doctor is to have an opportunity of thoroughly testing its efficiency. He has been summoned to Washington by Commissioner Loring, and is about to inaugurate a series of experiments in his method for the Department of Agriculture.—*Rural New Yorker.*

THE RESULTS OF SECTION OF THE VAGUS UPON SHEEP.—Ellenberger has made some very interesting experiments to determine the effect of section of the pneumogastrics upon sheep. He found that after cutting the pneumogastric on one side only, no disturbance of heart, lungs, or stomach was observed. The general matter was not impaired. Ten weeks after the section the animals were killed. There appeared to be some thinning and atrophy of the muscular wall of the third and fourth stomach in the animal whose right vagus was cut, and a similar change in the first and second stomach of the animal whose left vagus was cut. When both vagi were cut the animals died in from twelve to twenty-six hours, except in one case, when life was prolonged for sixteen days. Death resulted in all cases from suffocation by stopping of air-passages. There was constantly observed: complete paralysis of the oesophagus, partial paralysis of the first and second stomachs, increased heart-beat up to 160 per minute, labored irregular and at first slower (12 to 16 per minute) respiration, and inability to regurgitate and chew the cud. It appears that the vagus sends motor nerve-fibres to the first and second stomachs, but that the third and fourth stomachs are enervate independently. The con-

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stant development of *typanitis* as a result of paralysis of the vagus may have some practical significance.—*Journal of Com. Med.*

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